HEALTH INFORMATION EXCHANGE (HIE) IN EMS: WHY IS IT IMPORTANT?

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BOOTS ON THE GROUND

- Multi-state Paramedic with Master's in Information Security and Bachelors in IT Management
- Remote, Rural, & Urban experience from Glacier Park to Burning Man to San Francisco & New Jersey
- National EMS Advisory Council (NHTSA/FICEMS)
- Consultant to many states and federal government
  - Strategic Highway Safety Planning (CA)
  - Rural EMS System Development
- Board of Directors: Paramedic Foundation
- Cardiac research for "heart attack detector"
- National projects include:
  - Evaluation of 2009 NASEMSO Performance Measures
  - Project Manager for new EMS Performance Measures
  - TIIDE trauma triage guidelines
  - National Scope of Practice Model
  - Rural Health IT advisor
  - Information Security advisor

TECHNOLOGY
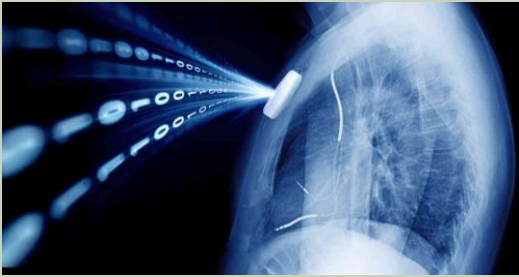

IS COOL

PARAMEDICINE OF THE PAST

- Required "protocols" to protect physicians providing "delegated practice" to subordinates:
  - Designed for lowest common denominator
  - Some states rely heavily and some do not
    - NJ dual paramedic required with MD contact ASAP
    - CA base contact in many situations including MICN based orders
    - TX nears independent practice, similar to many other countries such as
    - AUS peer based professional accountability

PARAMEDICINE OF THE FUTURE

- Call Taker (211, 911, etc) reviews patient history for appropriate dispatch
- Responding providers briefed on recent past history PTA
- Paramedic looks up lab values and radiology reports in real-time at patient side
- Prescription info automatically incorporated to ePCR
- Remote monitoring devices send data that allows "system" to alert for unusual trends or major deviations
- Physician consult online eliminates need for transport with Rx transmitted for delivery – contemporary medical control
- Case management team notification for automated scheduling of patient visit

DATA DATA DATA!

WHAT KIND OF DATA?

- PAST: EMS creates records about incidents that have patients
- FUTURE: EMS will create & update records about patients that have an incident
- Discrete data – most patients and providers can recall discrete data
- Trending data – most patients and providers cannot recall trends

PARAMEDIC DATA

- Rely on questionable history plus immediate patient presentation to determine immediate care plan
- HIE enables evaluation of patient past experiences to select and compare information about a specific individual or event.
- Provide the right care to the right person at the right time
- Patient specific risk based treatment based on a *diagnostic formulation* where the provider proposes etiological hypotheses and targets of intervention that include much more than just diagnostic 'category' assignment

PARAMEDIC CONSIDERATIONS

- Providing context for patient condition is critical for optimal outcomes
- *"The important things are simple and the simple things are very hard"* – Murphy's Laws of Combat

HIE WILL CHANGE PARAMEDICINE

PARAMEDIC LOGIC MODELS

- …and how HIE will change EMS (my philosophical predictions)

- 1973-2014: Deductive-Nomothetic Reasoning
- 2015+: Inductive-Idiographic Reasoning

NOMOTHETIC REASONING

- Deductive (normative):
  - Are observed on a relatively large sample and have a more general outlook
  - Protocol based approach a.k.a. stereotyping
  - Allopathic medicine is based on a deductive-nomothetic method
  - "Nomothetic Fallacy" is the belief that naming a problem effectively solves it
  - Deductive reasoning: if something is true of a class of things in general, it is also true for all members of that class
  - Top-down approach

- The way paramedicine was originally designed

IDIOGRAPHIC REASONING

- Inductive (case based):
  - Study or discovery of particular scientific facts and processes, as distinct from general laws
  - Its all about trying to understand the individual case/condition
  - Patient condition based approach a.k.a. diagnostic formulation
  - Homeopathic medicine is based on an inductive-idiographic method
  - Even if all of the premises are true in a statement, inductive reasoning allows for the conclusion to be false
  - Bottom-up approach

- The way HIE will change paramedicine for the better

WHAT DOES THIS MEAN?

THE PATIENT

- Patients will be able to access and update their health record anywhere anytime
  - Medicine compliance
  - Symptoms & concerns
- All care providers will have appropriate access
- *Ultimate continuity of care* also requires accountability by all providers
  - Opens up care silos with cross visibility (ex.Texas Presby Ebola issue)
- Allows for patient specific research & outcome studies for optimal advice
  - Better than Google Searching for advice with hundreds of millions of potentially specific cause>effect (case based) examples

THE SYSTEM

- Can provide the specific care needed in real-time (holistically)
- Cross Care Coordination (CCC)
  - Reduces lag time delays between departments & providers
- Improves patient experience for complete experience opportunity at each encounter
- Optimal care pathways leading to best outcomes reducing readmissions (its all about the patient)
  - Readmission avoidance maximized
- Cost reduction
  - Better outcomes in general – maximal efficiency of the process
  - Fewer test repeats - repeat testing is a major risk factor for incidental detection and overdiagnosis

WHAT IS REQUIRED?

- NEMSIS v3+ w/web services for real time transmission of patient data, not just ePCR!
- Information Security – controlling access and ensuring availability 24x7x365
- Master Patient Index / Identification – accurate patient matching
- Paramedic Information Practitioners – manage the data collection, analysis, integration, etc
- Meaningful Use funding - $17B down $27B left to go
- Rural funding – special challenges exist
  - Decentralized care with tertiary centers
- Pay For Performance measures – what is measured matters and what matters is measured

HELP?

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